

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



10/539782



(43) International Publication Date
15 July 2004 (15.07.2004)

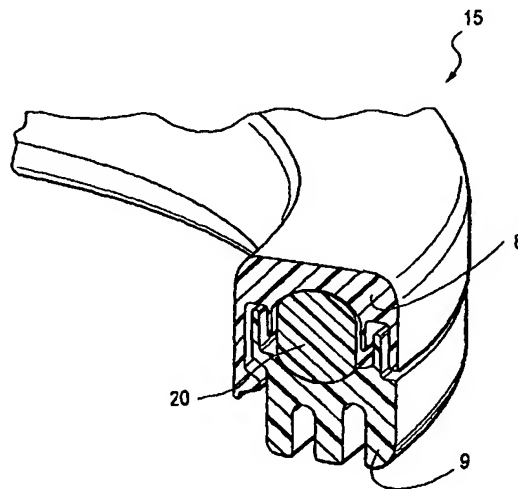
PCT

(10) International Publication Number
WO 2004/059181 A3

- (51) International Patent Classification⁷: F16C 17/04, B60G 15/06
- (21) International Application Number: PCT/US2003/040940
- (22) International Filing Date: 18 December 2003 (18.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/435,978 20 December 2002 (20.12.2002) US
- (71) Applicant (for all designated States except US): FAG KUGELFISCHER AG [DE/DE]; Postfach 1260, 97419 Schweinfurt (DE).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KELLAM, David [CA/CA]; 122 Elizabeth Street, Stratford, Ontario N5A 4Z3 (CA). TENG, Alex [CA/CA]; 831 Capulet Lane, London, Ontario N6H 5V2 (CA). CLAASSEN, Michael [CA/US]; 75365 Peters Drive, Romeo, MI 48065 (US).
- (74) Agents: FINDER, James, A. et al.; Ostrolenk, Faber, Gerb & Soffen, LLP, 1180 Avenue of the Americas, New York, NY 10036 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: PLASTIC RING BEARING, PARTICULARLY FOR USE IN MACPHERSON STRUT



(57) Abstract: A MacPherson strut tube having an upper spring seat, a spring, a strut tube, and a ring bearing (15, 25, 35, 45, 55 and 65) disposed for engaging the spring seat, the spring and the strut tube. The ring bearing (15) comprises an upper casing (8), a lower casing (9), and a plastic ring (20) engaged between the upper and lower casings, thereby forming said ring bearing.

WO 2004/059181 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
28 October 2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/40940

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F16C 017/04; B60G 015/06

US CL : 267/219,220; 280/124.155; 384/228,241,420,422,424

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 267/219,220; 280/124.155; 384/228,241,420,422,424

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,854,745 A (Kamimura et al.) 08 August 1989 (08.08.1989) whole document.	15, 8-10, 13, 14, 16-21, 24-26, 28, 30 and 32.
X	US 4,969,752 A (Kubota et al.) 13 November 1990 (13.11.1990) whole document.	1, 2, 4, 5, 8,-10, 13, 14, 16-18, 20, 21, 24, 25, 26, 29, 30 and 32.
X	US 5,476,326 A (Ueno et al.) 19 December 1995 (19.12.1995) whole document.	1, 2, 4-10, 13, 14, 16-18, 20-26, 29, 30 and 32.
X	JP 10-122233 A (Aida et al.) 12 May 1998 (12.05.1998) see abstract and figures.	1, 2, 4, 9, 10, 12, 13, 15-18, 20, 25, 26, 28, 29, 31 and 32.
X	JP 11-013767 A (Harada) 22 January 1999 (22.01.1999) see abstract and figures.	1, 2, 4-18, and 20-32.



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

10 August 2004 (10.08.2004)

Date of mailing of the international search report

09 SEP 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Thomas J. Williams *[Signature]*
Telephone No. 703-308-1113

INTERNATIONAL SEARCH REPORT

PCT/US03/40940

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	JP 2003-214425 A (Watai et al.) 30 July 2003 (30.07.2003) see abstract and figure 13.	1, 2, 4-9, 12-18, 20-25, and 28-32
X,P	JP 2003-269458 A (Watai et al.) 25 September 2003 (25.09.2003) see abstract and figures.	1, 2, 4, 5, 8-10, 12-18, 20, 21, 24-26, and 28-32.
X,T	JP 2004-176728 A (Kaneko et al.) 24 June 2004 (24.06.2004) see abstract and figures.	1, 2, 4-11, 13, 14, 16-18, 20-27, 29, 30, and 32.